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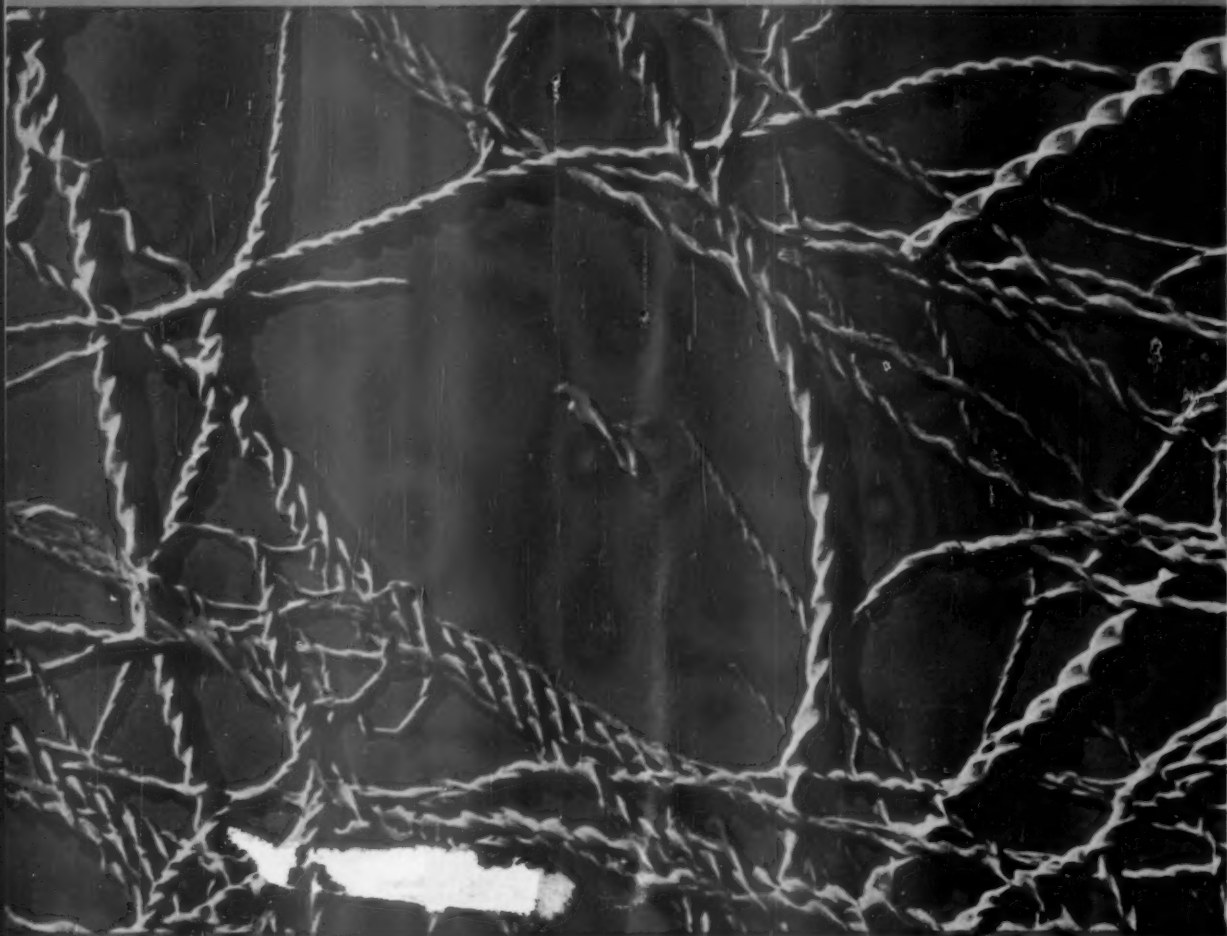
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July 14, 1956

VOL. 70, NO. 2 PAGES 17-32

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Grease Magnified**

See Page 23

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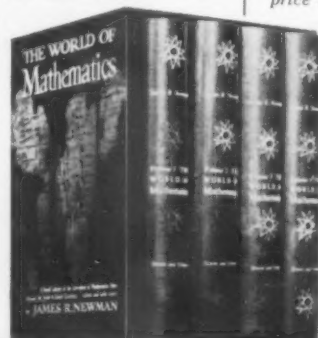
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## MEDICINE

# Misuse of Tranquilizers

**American Psychiatric Association warns public and doctors about new drugs. Study shows placebos and pills have same effect before surgery.**

► AN EMPHATIC two-way warning about the new tranquilizing drugs has been issued by the American Psychiatric Association.

1. The public and doctors were warned that "casual" use of these drugs to relieve every day tensions is "medically unsound and constitutes a public danger."

2. Physicians were warned to beware of "subtle pressures" from the public and pharmaceutical houses.

Normal competition among drug houses, the official statement points out, should not involve physicians in public relations enterprises directed toward premature announcement of "successful use" of particular products.

Psychiatrists are "enthusiastic" about these drugs for the treatment of psychiatric disorders, the warning statement says, but they are "concerned" about the apparently widespread use of them by the public for the relief of common anxiety, emotional upsets, nervousness and every day tensions.

The evidence is that these drugs are effective in making disturbed patients in mental hospitals more readily accessible to treatment. This has made possible impressive advances in mental hospital treatment programs and increased discharge rates.

In 1956, it is reported, 35,000,000 prescriptions for the drugs will be written. Of 10 compounds most frequently prescribed by doctors in 1955, three were tranquilizers.

The drugs have not been used long enough to determine the full range, duration and medical significance of their side effects, it is pointed out in the association's statement to its members.

Use of these drugs, the statement says, is no more to be encouraged than use of any other drugs except where medical diagnosis shows a drug is needed to maintain the life and functioning of a person.

The prescribing of the tranquilizing drugs for emotional illnesses carries with it an obligation for continuing appraisal and supervision by physicians fully aware of the psychiatric symptoms involved and the potentials of their course of development, alteration or remission.

Comprehensive research programs to evaluate the drugs, such as the one launched by the Veterans Administration, should be encouraged.

Psychiatrists are warned, however, to beware of "subtle pressures that combine to foster public misunderstanding and the misuse of the drugs."

By coincidence, reinforcement of part of the warning came in a report from Chicago. Blank placebo pills, looking just like pills of the tranquilizing drug, reserpine, had the same effect as reserpine in relieving anxiety

of patients about to undergo surgical operations, Northwestern University School of Medicine, Chicago, doctors found.

In other words, for this particular anxiety, the tranquilizing drug is not needed.

More effective than pills in relieving the patients' anxiety before operations, the Northwestern group said, is the patients' confidence in the hospital and the doctor.

This report, from a study by Drs. Roy M. Whitman, Morris A. Lipton and Eva Kavan, is presented in the *Quarterly Bulletin* of Northwestern University Medical School.

*Science News Letter, July 14, 1956*

## PUBLIC HEALTH

## Food and Drug Has Fiftieth Anniversary

► RE-TOOLING for the atomic age in medicines, foods and probably even cosmetics is one of the big jobs in the next 50 years for the U. S. Food and Drug Administration and the Meat Inspection Branch, U. S. Department of Agriculture, now celebrating their first 50 years of existence.

We may move quickly from the frozen

foods now in our supermarkets and corner grocery stores to foods preserved by atomic radiation. Our doctors today are already prescribing radioactive cocktails for some patients in hospitals and using radioactive tracer chemicals for diagnostic tests on others.

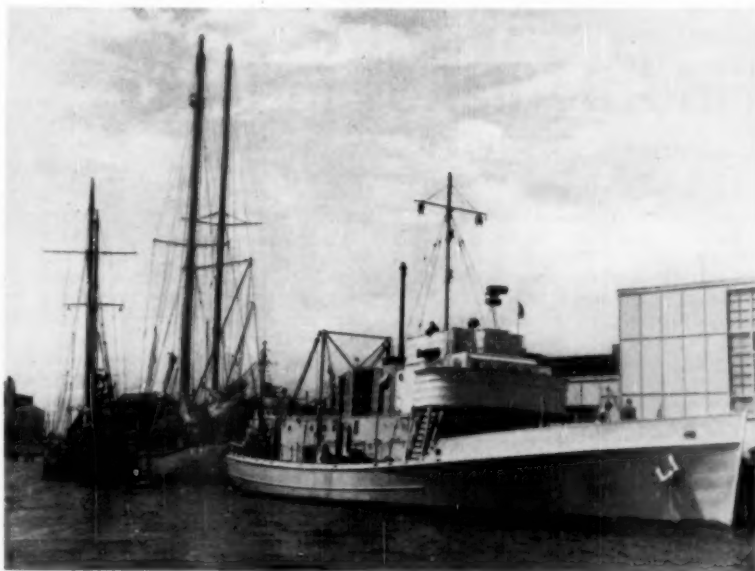
If we are to have the benefits of these and other atomic age developments without hazard, the guardians of our health through pure and safe foods, drugs and cosmetics must have our support.

This year we celebrate the passage 50 years ago of the first Federal pure Food and Drugs Act and the Meat Inspection Act, which have been called the "most important peacetime legislation in U. S. history." The next 50 years will call for increased research on how to use safely the life-saving advances other research is now bringing and will continue to bring.

We must be ready to supply funds for the one kind of research as we already are doing for the other kind. We must make careers in protection of foods, drugs and cosmetics inviting to boys and girls now in high schools and colleges so that we shall have a big enough army to give us this peacetime health protection in the atomic age.

When you go to buy food for the family today, or stop at the drug store for medicine, face powder or after-shave lotion, let the errand remind you to get acquainted with your state and local food and drug laws and their enforcement. The continued health of you and your family may depend on them.

*Science News Letter, July 14, 1956*



**HURRICANE SHIP**—To search out the birthplace of hurricanes in the South Atlantic, the Woods Hole Oceanographic Institution has commissioned the research vessel, Crawford, shown here in the foreground. (See SNL, June 9, p. 362.) In the background are the research vessels, Atlantis and Caryn. The R. V. Bear is barely visible through the rigging.

## PSYCHOLOGY

# Halt Recurring Strikes

► PSYCHOLOGISTS have the know-how to deal with recurring strikes.

A strike, in the view of scientists, is a surface symptom of an underlying social maladjustment or disease.

The reason measures taken to "settle" a strike so often fail or only lead to a recurrence of the strike a little while later is because they are aimed at treating the symptom and not the underlying cause. It is as if a physician should treat a typhoid patient only with sponge baths to reduce his fever.

The Federal Government could sponsor a commission of scientists to analyze specifically the causes underlying recurrent strikes, it has been suggested by Dr. Dorwin Cartwright, director of the Research Center of Group Dynamics, University of Michigan.

Such a commission should examine the major sources of tension from the point of view of economics, sociology, political science and social psychology. It would be devoted to a search for facts and understanding and would, therefore, not be partisan.

There are several reasons that psychologists could point out why the "conciliation" method used at present and in the past fails to produce any lasting solution.

In the first place, both labor and management are likely to pick as representatives on any conciliation board men who not only are not gifted in ability to conciliate, but who can be relied upon to "stick to their

guns" and put up a good, hard-slugging fight for their own side of the dispute.

However, this is not the only handicap of "conciliation" boards. Both sides in the dispute must rely for strength in the show-down on the support of their constituencies and some of the public.

Yet neither the representative of labor or the spokesman for management actually knows what the men behind him really want. And both have only the vaguest notion what the desires and needs of the public are.

A scientifically conducted survey of the requirements and desires of stockholders, management, workers and the public would show each representative around the "conciliation" table the limits of support behind him and how much he might concede without betraying his trust.

Such a means for bringing the true facts to the conference table is recommended by Dr. Francis Bradshaw, consulting psychologist of Richardson, Bellows, Henry and Co., New York.

Sometimes it is found that even the words basic to the dispute are not understood by the individuals concerned or not understood in the same way. In one situation, tests revealed that the average supervisor failed to understand 80% of the words used in the contract under controversy. The average union shop steward missed 70%.

Science News Letter, July 14, 1956

## GEOLOGY

# Find Badlands in East

► CHILDREN who like to play cowboy can find badlands in eastern United States which look ideal for cattle rustling or maybe holding up a stage coach or two.

Badlands like those in South Dakota, Arizona and New Mexico have been studied by geologists at Perth Amboy, N. J. A barren, rugged region on the north bank of the Raritan River in New Jersey has been compared with similar areas in the West by scientists seeking to learn more about erosion.

The eastern badlands were found to have been formed according to the same laws which shaped their western counterparts. They have the same desert-like, sandy stretches, the same sharp-ridged hills, the same narrow canyons where imaginative young Indians and outlaws can ambush each other.

The Perth Amboy badlands have developed since 1929, when waste from some of the area's clay pits backfilled an abandoned clay pit, producing a deeply rutted, steep-faced, terrace-like deposit 40 feet high. The badlands only cover a few hundred feet.

The Perth Amboy badlands are not the only ones in eastern United States, the scientists say. Wind and water are rapidly carving badlands out of the Ducktown Copper Basin in southeastern Tennessee, where more than 10 square miles have been stripped of earth-holding vegetation by smelter fumes. This is considered the largest bare area in any humid region of the United States.

Stanley A. Schumm reports his findings in the *Bulletin of the Geological Society of America* (May).

Science News Letter, July 14, 1956

## ENTOMOLOGY

# Beetle Has Built-in Stay-at-Home Control

► THE AMBROSIA BEETLE'S flight muscles degenerate about the time housekeeping cares loom, a Canadian scientist has found.

Reporting his work in *Nature* (June 23), John A. Chapman of the Forest Biology Laboratory, Victoria, B. C., says this also

applies to ants, termites, aphids and mosquitoes. But whereas both male and female ambrosia beetles are earthbound, only the queen ants and termites are restricted.

The scientist says that the flight muscles disappear because of hard work and no eating. Just after they mate, the beetles have the job of building a gallery for their brood. Lack of food while working makes the flight muscles degenerate. Since the beetles cannot fly they are held to their work, and the flight muscles degenerate still more.

After the young have been born and mature, the parental beetles gorge themselves.

Science News Letter, July 14, 1956

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## MEDICINE

**Drug Dilates Closed Arteries in Arms, Legs**

➤ **GOOD RESULTS** with a new drug for relieving spasm and blocking of arteries in arms and legs are reported by Drs. J. Manly Stallworth and Joseph V. Jeffords of Charleston, S. C., in the *Journal of the American Medical Association* (June 30).

The drug is called azapetine, or lidar.

Among the 52 patients treated, some had thromboangiitis obliterans, or Buerger's disease. Others had arteriosclerosis obliterans, a kind of artery hardening in which the small arteries in legs and arms, feet and hands may be completely closed by the thickening of the artery walls. In some patients, the arteries were closed in spasm.

The drug can be given either by mouth or by injection into the veins. The vein injection immediately dilated the arteries in seven of ten patients. The doctors think this can be used as a test to tell whether the patient will benefit from taking the drug by mouth or from a nerve cutting operation, sympathectomy, also done to relieve the closed artery condition.

The improvement in the patients was shown by better circulation, relief of symptoms and by tests of skin temperature among others. Not all patients were helped.

*Science News Letter, July 14, 1956*

## PSYCHOLOGY

**Understanding Not Key To Marriage Happiness**

➤ **HAPPINESS** in marriage does not depend upon understanding your wife (or husband), Dr. Raymond J. Corsini of the University of Chicago found in a study of 20 university student couples.

Happiness is associated, he observed, with similarity between husband and wife in the way in which they see themselves.

For a marriage to be happy, it is important that the husband be a stereotyped or conforming individual. Thus, there is good reason for the familiar plea of the unhappy wife, "Why can't you be like other husbands?"

It is not at all necessary, however, for the wife to be like other women.

Although it is important for husband and wife to be alike at least in their own views of themselves, actually husbands are no more like their wives than are unmarried couples picked at random.

Dr. Corsini found no evidence at all that happiness in marriage is a function of understanding in the sense of being able to predict how your wife (or husband) will size up her (or his) own personality. Furthermore, he found no evidence that understanding between husband and wife is greater in cases where the married persons are similar.

Results of the study are reported in the *Journal of Abnormal and Social Psychology* (May).

*Science News Letter, July 14, 1956*

## TECHNOLOGY

**New Gas Turbine Bus**

➤ **A NEW TYPE** of bus will be built as soon as the countries of the world have roads to take it.

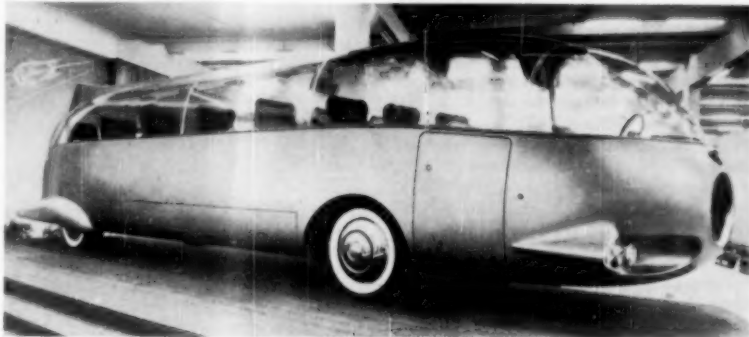
Dr. A. Viberti, head of the Viberti Motor Company, Turin, Italy, has designed the "Golden Dolphin," which is to have a gas-turbine motor and be capable of cruising smoothly at 125 miles per hour.

The new coach is to have several revolutionary features. It is to be built entirely of plastic; the whole coach will be roofed over with polarized glass, so that passengers will have an uninterrupted view of the scenery without having to worry about the

The plastic construction will make for extreme lightness, but give the same strength now associated only with metal construction. The coach is to be air-conditioned, and the design includes arrangements for radio-telephone and television.

In the deluxe version, the comfortable armchairs can be turned so that passengers can play a game of cards or enjoy a round-the-table talk. Other equipment planned includes a refrigerator, a coffee-machine and a buffet.

The suspension of the coach will be independent on all four wheels, incorporating



**GOLDEN DOLPHIN**—This gas-turbine motor coach will carry 18 passengers and will be capable of running 125 miles an hour.

glare of the strongest sun; and the deluxe version will accommodate only 18 passengers, seated in individual armchairs that can be inclined or swiveled at will.

The driver's seat is in the center of the front of the coach, which will have doors on both sides so that it can be operated in any country in the world.

a balancing system for the expected high speeds.

Special tubeless tires have been designed for use on the "Golden Dolphin." The gas-turbine motor, which is being built by Fiat, will be mounted under the floorboards just over halfway to the rear of the coach.

*Science News Letter, July 14, 1956*

## TECHNOLOGY

**Use Sugarcane Waste**

➤ **PAPER** made from sugarcane can help solve the shortage of pulpwood for paper-making, the U. S. Department of Agriculture has reported.

A fibrous residue of sugarcane stalks, known as bagasse, is already being made into newsprint. Now Agriculture scientists at the Northern Utilization Laboratory, Peoria, Ill., have found an economical method for making other grades of paper from the waste product.

The new process separates bagasse fibers from the pith, which gives greater strength to the fiber for use in making fine bleached papers, stationery and packaging materials.

Bagasse papers are stronger than softwood papers in all but tearing resistance. They

are particularly suited for blending with wood pulps to make many different kinds of paper products.

The pith remaining after the bagasse fiber is extracted has an excellent ability to absorb blackstrap molasses. This makes the pith a convenient carrier for molasses used as feed, estimated at nearly a billion gallons a year.

"More than 70% of the blackstrap molasses now produced in this country could be mixed with pith from waste sugarcane stalks, as an integral part of sugar production operations, to produce a solid, easily transportable, high-energy feed ingredient that livestock relish," the scientists said.

*Science News Letter, July 14, 1956*

## MEDICINE

# Identify Crash Bodies

Special Air Force team has new use for blood groups to identify remains. Jet crashes have created a problem in identification.

► BODIES of the dead in the crash of two airliners in the Grand Canyon could probably almost all be identified from the marrow in fragments of their bones.

The identification would be done by determining the victim's blood group and subgroup. Bits of tissue other than bone can also be used for this purpose.

There is a team of specialists in this new method of identifying bodies from very small amounts of remains working at Wright-Patterson Air Force Base. The Air Force offered their services after the crash.

The method has been "very successful," W. H. Toy told SCIENCE SERVICE. Mr. Toy is chief of the Memorial Affairs Branch, AF Services Division, Air Materiel Command Headquarters at Wright-Patterson. His branch is responsible for identifying the remains.

All the Air Force specialists in this new use of blood groups for identification are located at the Wright-Patterson base. So far as known, only one other place in the nation does this work. This is the University of Michigan, where the work has only started and is done chiefly on long-dead bodies from an archaeological and anthropological point of view.

Jet crashes have created a problem for the Air Force, so it has set up the special group for adapting blood typing to identification of very small amounts of remaining human tissue or bone.

The work at Wright-Patterson is done by Dr. Margery Gray and three civilians who received training in identification in the Armed Forces during World War II and since. They are Richard L. Trask, Robert W. Ralston and George Schwaderer.

This team makes about 50 trips a year to the scene of air crashes. They helped identify the dead in the United Air Lines crash in Wyoming on Oct. 6, 1955.

Figures on the percentage of success of the method are classified, but it is officially called "very successful."

The method succeeds, Dr. Gray told SCIENCE SERVICE, for two reasons:

1. Large numbers of people now have had their blood typed either while in the Armed Forces, when giving blood to the Red Cross or as a routine when a patient in a hospital. Records of the blood types are usually easily available and often known to the families.

2. Blood types can be determined not only from blood but from bone marrow and other tissue even if only fragments are available, whereas identification from fingerprints, old scars, healed bone fractures and dental records may not be possible. Victims of a Memphis air crash were identified

when only 20 pounds of remains altogether were left.

Blood group substances are pretty thoroughly distributed throughout the body. They remain long after the blood itself has disappeared. These substances exist in different forms, so if one method of extracting them fails, another can be tried.

Extracting the blood group antigens from the remaining tissue and purifying them make up the big job in this new use of blood typing. Once this has been done, the material is tested against the standard blood typing sera in the usual way, but it may take as long as 12 hours to run one test on one piece of tissue or bone marrow.

Even when the bodies have been charred, there is usually enough uncharred tissue under the surface to do the test. This is because most of these burns are flash burns that do not burn the interior of the flesh.

Besides typing for the A, B, O blood groups, the Air Force specialists type subgroups of this system and also the MN system and are beginning to go into the Rh system. With many victims in a single crash, there might be many belonging to Group A, for example. This is where the other typing is effective.

Science News Letter, July 14, 1956

## AGRICULTURE

# Russia Boosts Food

► RUSSIA'S plans for huge agricultural increases over the next five years have been made public by the Food and Agriculture Organization of the United Nations (FAO).

Part of the Soviet Union's Sixth Five-Year Plan, the boosts in food production are target-dated for 1960 and include plans to increase the production of meat by 100%; milk by 95%; eggs by 154% and wool by 82%.

Specialists who are keeping a weather eye on Russian agriculture, call the proposed boosts "entirely unrealistic." They point out that in the past Russia has set similar "high goals" and failed to come close.

Russian weather, always problematical, coupled with a natural and institutional environment not conducive to efficiency, are cited as reasons for doubting the proposed goals will be achieved.

The specialists also point out that any comparison between what the Russians hope to produce and what this nation will produce in the same five years is invalid. The U. S., they say, has a problem of surpluses

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Saturday, July 21, 1956, 1:45-2:00 p.m. EDT  
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Max Kleiber, professor of animal husbandry, University of California College of Agriculture, Davis, Calif., will discuss "Radio-active Nutrition."

## MEDICINE

## Drug Gives Shakes, May Aid Palsy Victims

► A DRUG that gives animals the shakes like the trembling or tremor of shaking palsy has been discovered. As a result, better medicines for human palsy victims may be found.

The new drug, named Tremorine, is announced by Dr. Guy M. Everett of Abbott Laboratories, North Chicago, Ill., in *Nature* (June 30).

Tremorine was found in routine screening of drugs in mice. It is one of only 10 among 10,000 compounds that produce a sustained tremor. It also produces slight muscular weakness and rigidity like that in Parkinsonism, or shaking palsy.

The symptoms last several hours, and the drug produces the same effects in mice, rats, guinea pigs, cats, dogs and monkeys. Its effects are completely antagonized by various drugs used to treat Parkinsonism.

Dr. Everett hopes that the discovery of Tremorine and its further study will provide a useful tool for investigation of tremor and the search for more effective drugs for Parkinsonism.

Science News Letter, July 14, 1956

and is trying to cut down production. Russia, on the other hand, has a problem of scarcities and is trying to expand production.

The Russians, FAO reports, plan to bring about increased production through changes in agricultural planning, increased mechanization of farming and greater State investment in agriculture.

Mechanization of farming, for example, calls for stepping up the annual production of tractors twofold, combines threefold, and windrowers twentyfold over 1955.

"The Soviet farm program," the FAO says, "follows the main lines of the overall Five-Year Plan, which reaffirms the principle of priority for heavy industry. Therefore fulfillment of the agricultural program would depend largely on the State's success in implementing its industrial program. In order not to go beyond the resources put at its disposal, industry would have to reduce its production costs by 17%, to increase output per worker by 50% and to increase its number of workers by 10%."

Science News Letter, July 14, 1956



**INSECT'S SOUNDS**—The sounds made by insects' nerves placed in poison are being recorded by University of Illinois scientists. Here, Prof. James Sternburg places part of a nerve into a trough of poison. The sound will then be taped, projected onto an oscillograph and photographed for detailed study. The scientists hope to find clues to why some insects develop an immunity to DDT and other insecticides.

## HEMATOLOGY

## Detect Anticlotting Agent

► SOME PATIENTS with hemophilia, the hereditary bleeding disease once called the curse of the Hapsburgs, benefit from a few blood or plasma transfusions, but after the first few, these no longer make their blood clot and stop the bleeding.

This happens because the patients make in their own bodies an anti-blood clotting substance.

The anticlotting substance has been thought to be an antibody to clotting material in the transfused blood, but so far it has been detected only a few times by the usual antibody testing.

Evidence that the anticlotting substance is an antibody and a method to detect it have now been found by Drs. P. Fantl and R. J. Sawers of the Baker Medical Research Institute and Alfred Hospital Clinical Research Unit, Melbourne, Australia, who report it in *Nature* (June 30).

Patients with hemophilia lack prothromboplastin, a substance in blood that normally starts the clotting procedure after a cut or other injury causing bleeding. These patients have inherited an abnormality of protein synthesis, so that their bodies cannot create the prothromboplastin when it is needed.

A proportion of these patients, the Aus-

tralian scientists find, can make substances closely related to prothromboplastin in their antigenic property but without prothromboplastin's ability to form thromboplastin for clotting blood. These continue to benefit from blood transfusions.

A few patients, the ones with severe hemophilia, however, cannot make any prothromboplastin with antigenic property. Because of this, they are likely to develop antibodies to prothromboplastin in blood they get in transfusions. The prothromboplastin from transfused blood is such a complete foreign protein that their bodies react to it as they would to the protein of a disease germ in producing antibodies.

As a result, the transfused prothromboplastin cannot do its job of starting the clotting process, and the transfused blood, after a few transfusions, does not help the hemophilia sufferer by stopping his bleeding.

Which group a hemophilia patient belongs to can be told by a test using beta-prothromboplastin from human blood adsorbed on barium sulfate.

*Science News Letter, July 14, 1956*

Government officials in the Netherlands have reported the 3,000,000 cattle in that country now free from tuberculosis.

## TECHNOLOGY

## Microscope Magnifies Grease Thickening Agent

See Front Cover

► THE PHOTOGRAPH shown on the cover of this week's *SCIENCE NEWS LETTER* is not a tangled mass of metal shavings or an enlarged view of textile fibers. It is a microscopic view, magnified many thousands of times, of a thickening agent in grease.

The ropelike structure is one of the metallic soaps, which give grease many of its desirable properties. The photograph was taken by electron microscopy, a technique that allows magnification up to 100,000 times, compared to about 1,000 times for the best optical microscope.

At Westinghouse Electric Corporation's research laboratories, electron microscopes are being used to study everything from the effect of detergents on cloth to the examination of pure iron crystals and stainless steel welds, as well as properties of grease.

*Science News Letter, July 14, 1956*

## ENTOMOLOGY

## Houseflies Resist Powerful Killers

► THE HOUSEFLY appears to be registering another victory over scientists in the continuing war of eradication.

Danish scientists have found that flies, already DDT-resistant, are now developing an immunity to the more powerful phosphate exterminators.

In *Science* (June 29), J. Keiding of the Government Pest Infestation Laboratory, Springforbi, Denmark, says that, although not all Danish flies are immune to the phosphate killers, any small increase will hinder eradication programs.

In 1955, he states, Danish farmers reported that many flies were not succumbing to the phosphate insecticides, such as parathion, Diazinon and Bayer 21/199. This was a reversal of their previous experience with the phosphate exterminators.

In laboratory tests, more than half of a brood of flies caught in a local pig sty survived a 20-hour exposure to Bayer 21/199. The flies also proved they could survive parathion and Diazinon, although to a lesser degree, he reports.

Danish scientists are optimistic about the continued use of the phosphate compounds, however, pointing out that the resistance of the flies is only moderate. The Danish scientist cautions, nevertheless, that increasing resistance may make housefly control difficult "even with organic phosphate compounds."

There have been no similar reports of phosphate-resistant flies in the United States to date. U. S. scientists have raised phosphate-resistant flies in the laboratory, but report the insects' tolerance has always remained below critical levels.

*Science News Letter, July 14, 1956*

## PUBLIC SAFETY

## Face Injured in Half Auto Accident Victims

► NEARLY HALF the victims of automobile accidents suffer serious injuries to their faces, including damage to teeth and jaws, Dr. Jacob Kulowski of St. Joseph, Mo., reports in the *Journal of the American Dental Association* (July).

The significant frequency rate of facial injuries among automobile casualties, as distinguished from all other traffic injuries, has not been determined before. This, Dr. Kulowski explains, is because face injuries in the past have been included with head injuries in general.

His report was based on a study of 661 survivors of automobile crashes who were hospitalized at the Missouri Methodist Hospital from late in 1949 through 1954.

In these 661 casualties, 295 persons, or 45%, received varying degrees of facial injuries as distinguished from injuries of the head.

The commonly accepted idea that the seat next to the driver is the "death seat" has not been substantiated either by recent studies made by the Cornell Automotive Crash Injury Research or Dr. Kulowski's observations.

"Both sides of the front seat present large injury potentials," he states. "The back seat is still considered to be the safest seat in the car, however (about three times more so than any other area, according to the Cornell investigators)."

He said the windshield, dashboard and steering control, as well as all other knobs and protuberances of a car's interior design are implicated in injuries of the facial regions above all other parts of the body.

Dr. Kulowski was critical of the engineering emphasis in devising safety aids.

"From the standpoint of the physician and dentist," he said, "it would seem that the attention of the engineer has been focused on the prevention of injuries to the head when facial structures should be getting more attention."

Science News Letter, July 14, 1956

## PHYSIOLOGY

## Alcohol Seeps Through Stomach After Death

► ALCOHOL can seep through the stomach wall after death. Consequently, by ordinary tests, a person who had drunk as little as three ounces of whisky shortly before death might mistakenly be classed as drunk if he was killed in an accident or murdered.

This finding, with medicolegal implications, is reported by Dr. Houghton Gifford of Stanford University School of Medicine, San Francisco, and Dr. Henry W. Turkel, coroner, City of San Francisco, in the *Journal of the American Medical Association* (June 30).

When an autopsy is done to determine

the cause of death, as in police cases, tests for alcohol in the blood may be made if there is any suspicion that the person had been drinking before death.

Ordinarily the doctor doing the autopsy takes blood for the alcohol test from the blood that pools in the sac around the heart after the great blood vessels have been cut and the heart removed. Occasionally, he may take blood from the heart before removing it, or he may take it from that which has pooled in one of the lung cavities during the autopsy.

Because of the seepage of the alcohol through the stomach wall even after death, tests on blood from such locations will give higher values than they should for the amount of alcohol consumed before death, the San Francisco doctors report.

The best place for taking blood, to avoid such false findings, is from the femoral vein running down the thigh, they found.

In their tests they put six- and three-ounce quantities of common brands of 86 proof whisky into the stomachs of 11 cadavers, using a stomach tube. The whisky was allowed to remain in the stomach from 10 to 24 hours. Then blood samples were taken from the usual sites and from the femoral vein on one side. Before putting the whisky into the stomachs, blood had been taken from the femoral vein on the other side, for comparison with that after putting the whisky into the stomach.

Science News Letter, July 14, 1956

## HOME ECONOMICS

## 100 Cities Now Have Homemaker Service

► HOMEMAKER SERVICE, modern substitute for the grandmother or aunt who helped out in emergencies in the old days, is now available in about 100 large cities in the nation.

More cities and rural areas need this service, Dr. Martha M. Eliot, chief of the U. S. Children's Bureau, has reported.

"Homemaker service," Dr. Eliot said, "means that when the mother is ill and out of the home, or incapacitated, or when some other equally grave family emergency arises, a mature, motherly woman steps in to keep the family going by looking after the needs of the children until the mother can return or until the emergency abates."

"Homemaker service also is used to help older people stay in their homes, rather than move into institutions because they no longer are able to cope with household problems."

"It can be provided by either a public or a voluntary agency which is set up to give the supervision necessary in the program."

The cost is relatively not great, Dr. Eliot reported. In many communities, the rate of pay is between \$1.50 and \$1.75 per hour. Agencies finance most of the cost, but some families are able to pay for part or all of the service they get.

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# IN SCIEN

## AGRICULTURE

## Modern Wheat Strains Surviving Drought

► MODERN VARIETIES of wheat have successfully resisted the severe drought in much of the nation's midsection.

Parts of Kansas report yields of up to 26 bushels per acre.

U. S. Department of Agriculture horticulturists say improved strains of wheat mature earlier, thereby avoiding the hottest, windiest time of summer.

Late-maturing varieties of wheat planted by pre-1920 farmers were unable to stand drought conditions. Strains of wheat developed since that time have improved total yields by one bushel per acre for each day of earlier maturity. Present-day wheats mature as much as two weeks earlier than the old kinds.

Improved varieties of wheat, many of which were named after hardy Plains Indians, include Pawnee, Comanche, Wichita, Kiowa, Ponca and Triumph. Earliest is Triumph, maturing two weeks sooner than the old Turkey variety in Oklahoma.

Scientists say, however, that early maturity has disadvantages. Chief among these is susceptibility to late frost. Any strain that matured earlier than Triumph would be impractical.

Modern strains of wheat have not entirely solved the drought problem. Severe dry weather early in the season can wipe out a crop. Farmers in some parts of Kansas are plowing under their wheat.

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## HORTICULTURE

## Small Trees Urged For City Landscaping

► SMALL TREES are being recommended for city use by U. S. Department of Agriculture horticulturists.

Many of our larger trees are so old that maintenance is becoming difficult and some are being replaced, according to a report in *Agricultural Research* (July).

Small trees cost less to maintain and go well with low, ranch-type houses, the report states.

A little known but attractive small tree suggested in the report is the Japanese Yeddo hornbeam.

Introduced into this country more than half a century ago, the Yeddo hornbeam has not had wide popularity, due perhaps to the emphasis on big trees. It is adapted to the humid East from southern New York southward, and is tolerant of many soils. The 30-foot tree assumes a reddish-bronze color in the fall.

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# E FIELDS

## ICHTHYOLOGY

### First Officially Reported Marlin Found Near Africa

► THE FIRST MARLIN to be officially reported from the vast stretch of Atlantic Ocean off the west coast of Africa has been described. The 12-foot fish was found ashore at Lobito Bay, Angola, north of southwest Africa.

The discovery is reported in *Nature* (June 30) by Dr. J. L. B. Smith of Rhodes University, Grahamstown, South Africa.

Dr. Smith says that "as marlins are known to travel widely, it is astonishing to find that the range of these fishes in the Atlantic is far more restricted than might be supposed. Up to the present, there has not appeared in scientific literature any report of the occurrence of any species of marlin anywhere near the whole length of the extensive western coast of Africa."

Although the marlin reported by Dr. Smith had been partly eaten by sharks, a photograph of the fish shows it had an overall length of 144 inches and weighed about 450 pounds. Dr. Smith states it is not certain whether the fish is a "blue," or a "black" marlin.

The "Lobito" marlin, Dr. Smith cautions, is not proof "that marlin are abundant along the west coast of Africa, for no others have been reported there and this may have been a stray."

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## EDUCATION

### More U. S. Youngsters Study Foreign Languages

► MORE YOUNGSTERS than ever before are learning foreign languages in grade schools in the United States.

Last year in 203 communities in 37 states, 271,617 children from kindergarten through the sixth grade were receiving foreign language instruction in U. S. public schools, the U. S. Department of Health, Education and Welfare reports.

The most popular language, the HEW report shows, is Spanish. This is followed by French, German and then Italian, Latin, Norwegian and modern Greek.

Swedish and Japanese are taught in a few communities.

No Russian is taught in any elementary school.

The study of foreign languages by our youngest students in the public schools has increased so fast that enrollment has jumped almost 60 times since the beginning of World War II. According to the latest report, the number of grade school students tackling a foreign language is already more than one-third the number of their older

brothers and sisters in the public high schools.

It is even fast approaching the number of students of foreign languages in all U. S. colleges and universities.

"The more the practice of teaching a foreign language in the elementary schools grows," the Office of Education people say, "the greater of course is the need for teachers who not only know a foreign language but also have the training in how to teach it."

One answer to the need, it is pointed out, is the summer workshop. Last year, 29 colleges sponsored workshops and it is expected the number will increase this summer.

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## NUTRITION

### Men, Women Differ In Amino Acid Needs

► WOMEN do not need as much tissue-building amino acids in their food as men.

The amino acids combine to form proteins that in turn help build muscles, enzymes, blood and hormones.

Studying the amino acid requirements of girls at the University of California and at the University of Nebraska, nutritionists found the girls' amino needs were lower than those suggested by other researchers for young men.

The girls, all volunteers, ate synthetic diets containing every known nutrient necessary for health, but the amounts of amino acids were varied. Cornstarch, sugar, fat, and synthetic vitamins and minerals were the daily menu. Pure amino acids dissolved in water were added to the ration. Small amounts of fruits and vegetables made the meals more enjoyable.

After six to eight weeks of this diet, analysis of the girls' body products showed Drs. Marian E. Swendseid of California and Ruth M. Leverton of Nebraska just how much of each of certain essential amino acids young women need. Their work is reported in *Agricultural Research* (July).

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## PHILOLOGY

### Use Two Words in Writing Honey Bee

► TO WRITE the name of the insect that provides honey, use two words "honey bee," Dr. R. E. Snodgrass of the Smithsonian Institution recommends.

The rule, he says, is: If the insect is what its name implies, write the two words separately; otherwise, write as one word.

Thus, "house fly" is written in two words because it really is a fly, but "butterfly" is one word because it is not a fly at all.

"Aphislion" and "silverfish" are written together because the former is not a lion and the latter is not a fish.

Dr. Snodgrass cites the rule in a new book "Anatomy of the Honey Bee." (See p. 28.)

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## MEDICINE

### Rauwolfia Drug Now Being Tested

► A NEW RAUWOLFIA extract that may be useful either as a local anesthetic or in treating blood vessels disorders is being tested by Drs. J. D. Kohli and N. N. De of the Central Drug Research Institute, Lucknow, U. P., India.

The new drug is called rauwolfscine. It comes from the snakeroot plant family that has given reserpine and other anti-high blood pressure and relaxing drugs.

Its important action is in blocking nerves which normally are stimulated by the adrenal gland hormone, adrenaline or epinephrine.

In large doses, however, it produces psychic and sexual excitement in animals. In this respect it is like another drug, yohimbine. Chemically, it is alpha-yohimbine.

Whether in small doses rauwolfscine can be used as a medicine is now being tested. Details of the work so far are reported in *Nature* (June 23).

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## BACTERIOLOGY

### Clue to Life at High Temperatures Found

► ORGANISMS that thrive at temperatures high enough to stop the growth of most living creatures do so because their proteins are particularly heat stable.

This heat stability seems to stem from more effective hydrogen and hydrophobic bonding and decreased electrostatic repulsion between molecules.

These are the findings of Purdue University professor of bacteriology Henry Koffler and his assistant, G. E. Mallet. They studied the whip-like cell extensions known as flagella, comparing those from heat-resistant thermophiles with flagella from mesophilic bacteria that live under more temperate conditions.

Flagella are made up of fibrous proteins similar to some found in blood, muscle, skin and hair.

Using urea and acetamide, agents that break hydrogen bonds, the scientists discovered that flagella from thermophiles are more resistant to these hydrogen bond breakers than those from mesophiles. Thus, a partial explanation of differences in the heat stability of these protein aggregates lies in more effective hydrogen bonding in thermophiles.

Using dodecyl sulfate, which disrupts hydrophobic bonds, the researchers achieved similar results. Flagella from thermophiles are more resistant than mesophile flagella to this anionic detergent.

Finally, they found that flagellar proteins isolated from thermophilic bacteria possess only about half the basic and acidic groups found in similar proteins from ordinary bacteria.

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## BIOLOGY

# Exploring Mother Earth

This summer is a good time to take soil apart and put it back together. There is a fascinating world underfoot that is too often taken for granted.

By HOWARD SIMONS

► THIS SUMMER tread lightly on Mother Earth.

Whether you are hiking through the woods, playing at a lakeside or green-thumbing in the back yard, there is an entire world alive underfoot.

Summer in the United States affords children and grown-ups alike a fine opportunity for exploring the world they live in, but rarely have time to take apart and put back together. There seems no earthly reason why a find-it-out-yourself course in something as "taken-for-granted" as earth cannot be fascinating and educational.

This is the direction two researchers of the New York State College of Agriculture at Cornell University, Ithaca, N. Y., have taken. Profs. Dora E. Worbs and Eva L. Gordon have found the world underfoot as fascinating as others have found the world overhead.

"Wherever you are now," they point out, "down underfoot there is soil or rock from which soil is being made. This soil is not just plain dirt. It is an exciting world which few persons really discover. It is a living world of plants and animals, some so small that they can be seen only with the help of a microscope, others as large as woodchucks and the roots of giant trees. It is a world of particles of different colors, sizes and combinations. It is a chemical world of air, water and minerals. It is a constantly changing world, a wonderful world to explore."

## Surface Soil Is Mixture

A good place to start exploring, the New Yorkers state, is with a handful of soil. This will probably be surface soil, which is often a mixture of particles of many sizes. Good representative surface soil might contain pebbles, or even large stones; sand grains; fine silt and clay particles.

A handful of soil is actually small bits of rocks made up of various minerals and the remains of plants and animals that have lived and died in or on the soil.

This is surface soil. It is the richest of the soil layers in organic matter and the most familiar to man, who has plowed, tilled, dug and cultivated it for thousands of years. It is also the most weather-beaten. Just below the surface soil is the subsoil, an ever changing mixture that pushes itself upward, eventually graduating into the lower surface soil class.

The surface or topsoil is usually darker

than the subsoil. This is so, the soil scientists state, because it contains more humus, made of decayed bits of plant and animal life and the waste products of living plants and animals. These substances are broken down by microorganisms in the soil, until they are no longer recognizable. The tiny dark-brown or black particles we call humus are so small that they cannot be seen even with the help of a microscope.

Topsoil containing humus is much desired by the farmer and the gardener, for humus soil holds more water and air than soil without it. And water and air are necessary to the life of soil.

Crumble a lump of moist soil from a plowed field or your garden and watch it break into smaller lumps. These crumbs of soil are called aggregates. Just how these aggregates are made and then held together is not fully understood by the scientists. Wetting and drying, freezing and thawing help to arrange soil particles as do the activities of plants, groundhogs, chipmunks, moles and earthworms.

Like human skin, soil has holes that are called pores. Through these pores, the soil receives its water and air. Lack of air in the soil is just as bad for it as a lack of water.

Soils on which trees or grass have grown for some time under careful management, the New Yorkers report, usually have many aggregates, which in turn means that air and water can move readily through them and in which roots and root hairs can push their way easily. Soils used to grow some crops often lose these valuable aggregates.

Raindrops falling on bare ground break them and water that runs off a field carries away humus, clay and silt. This is why soil conservation practices are so vital to the life of good soil.

## Subsoil Also Important

Subsoil is important too, we are told, because plants with long roots often sink their way through the topsoil in search of water and minerals in the subsoil. Below the subsoil in a representative profile is usually found broken-up rock. And even farther down is often just rock.

Soil itself has character. It has color and a popular and technical name.

Anyone who has seen the red soil of



**LIFE UNDERFOOT**—This young lad, in search of worms for an afternoon of fishin' now that school is out, is surrounded by a world of underground dwellers. Life underfoot is fascinating and rarely given thought. The soil in which he found his worm probably harbors billions of microscopic plants and animals that contribute to the growth of soil.

Oklahoma, or the deep black soil of Iowa or the soft brown soil of upstate New York has first hand experience that soils can vary in color.

They are different in how they are identified too. Soil scientists often classify them into four general groups according to their recognizable mineral particle sizes. These are gravels, sands, loams and clays. A soil can be and usually is a mixture of more than one of these classes. Each has subdivisions too, such as clay loam, silty clay loam and silt loam. Soils are named by the scientist for their texture. To this is added the geographic name of the place where the soil was first studied, such as Ontario (N. Y.) silt loam.

### Keystone to Soil Formation

A large part of the life of the soil is made up by the life underfoot in the soil. It is a keystone to soil formation. The numbers and kinds of living organisms in the soil can be staggering to the imagination. Soil scientists in one study, for instance, figured out that one gram of soil could harbor from 100,000 to several billion bacteria.

Or, as the New York study puts it, "a tablespoonful of fertile topsoil may contain more of these tiny creatures (microscopic plants and animals) than there are people in the whole United States."

Minute organisms, however, are not the only life beneath the surface of the earth. Many kinds of plants and animals, we are reminded, find ideal living conditions in soil: different kinds in different soils. Many live their whole lives among soil particles. Others live half under and half above the soil.

There are animals that live in the soil, chipmunks, woodchucks and prairie dogs, to name a few. They use the soil "as a cozy home, but go above ground to make a living." The mole, on the other hand, spends almost its entire lifetime burrowing in the dark underground.

Probably the most popular underground inhabitant is the earthworm, who not only contributes to the sport of fishing, but is man's valuable soil engineer. The earthworm passes soil through its body, feeding on the substances in it.

In addition to the larger animals and the earthworm, one can find slugs, snails, sow-

bugs, centipedes and millipedes, spiders and mites, ants, beetles and small animals called threadworms, elworms or nematodes.

Plants too can be found under the soil. These are tiny plants that lack chlorophyll, the substance that makes plants green. These are mostly fungi and molds. Still others, the Cornell scientists report, are called thread bacteria or actinomycetes, which are like molds in some respects and like bacteria in other respects.

Not all plants and animals are helpful. Some are considered harmful soil dwellers.

"Probably no animals or plants are harmful to the soil itself. A few soil dwellers may cause diseases of living things, including man. Some may injure plants that men wish to grow."

The mole, Japanese beetle grub and microscopic threadworms are in this category.

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### GEOPHYSICS

## North Pole Farther North 150 Miles Up

► THE NORTH POLE is one degree farther north at a height of 150 miles above the earth's surface, Dr. J. A. Jacobs, University of Toronto physicist, reports in *Nature* (July 7).

He calculated the gradual shift in the position of the North Pole with increasing altitude. Its position at ground level is 76 degrees north, 258 degrees east (102 degrees west) for the year 1942, Dr. Jacobs calculated. For the year 1956, he reports, the latitude must be increased approximately one degree, although there is no appreciable change in longitude.

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## How To Keep Cool — on the hottest, stickiest days; with or without air conditioning—by Arthur Carson.

Even if you already own an air conditioner, does it cool off the entire house—or just one room? Actually, you don't have to spend a fortune to make your home comfortable. Settlers in the tropics, the Armed Forces, and scientific laboratories (especially those run by large industrial firms whose employees swelter before blazing furnaces) have discovered hundreds of little known facts on how you can cool off fast and stay cool, yet spend very little money—even how to get real summer comfort without the help of electricity or fans.

And how necessary it is to stay cool! "Failure to understand the many simple and inexpensive ways by which any home and yard can be made cool has brought sleepless nights, impaired health, and in many cases death itself to countless millions of American homes." So declares the conservative foreword of *How to Keep Cool*.

This big book describes practically every scientifically right way known to cool yourself, your home, and your yard—yet spend much less than you'd expect to lay out for even a one-room air conditioner. (And if you should decide to buy an air conditioner, it tells you how to get the right size for your needs—the surest way not to buy too large and costly a unit or too small and thus practically useless a one.)

Why put up with one more heat wave when it's so unnecessary? Send now for *How to Keep Cool*. It's only \$1. Mail name and address with dollar (money back if not satisfied) to HARIAN PUBLICATIONS, 1 Spring St., Greenlawn (Long Island), N. Y.

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### When you "suffer" from the heat

—you're allowing your health to suffer if you're a day over 45.

—you take serious and wholly unnecessary chances if you're already in bad health.

—you're flirting with disaster if you're over 65.

If you've always thought that getting real summer comfort means spending a lot of money for machinery, study *How to Keep Cool* for the latest findings of scientific laboratories on how to keep cool simply, inexpensively.

# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**ANATOMY OF THE HONEY BEE**—R. E. Snodgrass—*Cornell University Press (Comstock)*, 334 p., illus., \$6.00. The honey bee supports a large commercial industry, the author points out, and probably for this reason the anatomy of the bee has long been a subject of great interest. (See p. 25.)

**ASYMPTOTIC EXPANSIONS**—A Erdélyi—*Dover*, 108 p., paper, \$1.35. An unabridged republication of a monograph prepared for the Office of Naval Research.

**THE CHEMISTRY AND MODE OF ACTION OF PLANT GROWTH SUBSTANCES**—R. L. Wain and F. Wightman, Eds.—*Academic*, 312 p., illus., \$9.50. Proceedings of a symposium held at the University of London in 1955.

**CHROMOSOME BOTANY**—C. D. Darlington—*Allen & Unwin (Macmillan)*, 186 p., illus., \$2.75. An introduction to a wide range of biological problems.

**DETERMINATION OF ORGANIC COMPOUNDS**—K. G. Stone—*McGraw-Hill*, 233 p., illus., \$5.00. An introduction to the field of organic analysis from the standpoint of functional groups.

**AN ESSAY ON THE FOUNDATIONS OF GEOMETRY**—Bertrand A. W. Russell, new introduction by Morris Kline—*Dover*, 201 p., paper \$1.50, cloth \$3.25. A student edition of a science classic.

**EXPERIMENT AND THEORY IN PHYSICS**—Max Born—*Dover*, 44 p., paper, 60 cents. An expanded version of a famous address given by this Nobelist, offering analyses of theoretical and mathematical advances.

**THE FIRST BOOK OF TRAINS**—Russell Hamilton—*Franklin Watts*, 69 p., illus., \$1.95. In this day of jet airplanes and rockets, the choo-choo train is still very important to children and to many of their fathers.

**HAMMOND'S MAP LIBRARY**—C. S. Hammond & Co., 9 maps nearly 12 square feet in area in a book-like map box, \$9.95. Useful for wall or library shelf in home, school or office.

**HANDBOOK ON THE INTERNATIONAL EXCHANGE OF PUBLICATIONS**—Gisela von Busse and H. Werhahn, Eds.—*UNESCO*, 2d ed., 507 p., paper, \$7.00. Includes lists of addresses of institutions in more than 87 countries.

**THE HISTORICAL BACKGROUND OF CHEMISTRY**—Henry M. Leicester—*Wiley*, 260 p., illus., \$6.00. Tracing the development of chemistry through the thoughts and ideas of chemists.

**HORMONES AND THE AGING PROCESS**—Earl T.

Engle and Gregory Pincus, Eds.—*Academic*, 323 p., illus., \$8.50. The notion that senescence in males could be corrected by testis grafts, the editors point out, took a long time to die. The papers show the emphasis in recent research.

**INFINITE SEQUENCES AND SERIES**—Konrad Knopp, translated by Frederick Bagemihl—*Dover*, 186 p., paper \$1.75, cloth \$3.50. Developing the theory of infinite sequences and series from its beginnings. This is the first publication of a new work by this mathematician.

**INTEGRAL FUNCTIONS**—M. L. Cartwright—*Cambridge University Press*, Cambridge Tracts in Mathematics and Mathematical Physics No. 44, 135 p., paper, \$3.50. Intended to make certain parts of the theory of integral functions more easily available, especially those concerning the behavior of a function of finite order in an angle.

**ION EXCHANGE TECHNOLOGY**—F. C. Nachod and Jack Schubert, Eds.—*Academic*, 660 p., illus., \$15.00. Both textbook and reference work for technologists and engineers. Describing new ways for treatment of water, electrochemical operations, recovery of important materials from waste and treatment of radioactive wastes.

**A KEY TO THE HEAVENS**—Leo Mattersdorf—*Fawcett*, 159 p., illus., paper, 35 cents. Originally published by Lantern Press under the title, "Insight Into Astronomy."

**A LABORATORY STUDY OF CHEMICAL PRINCIPLES: A Semimacro Manual Integrating General Chemistry and Qualitative Analysis**—Harper W. Frantz—*Freeman*, 2d ed., 266 p., illus., paper, \$2.75. The author believes that general chemistry should be taught as a laboratory-centered course.

**MINERALS FOR ATOMIC ENERGY: A Guide to Exploration for Uranium, Thorium and Beryllium**—Robert D. Nininger—*Van Nostrand*, 2d ed., 399 p., illus., \$8.00. The present demand for uranium, the author indicates, is almost entirely for defense. The long-term market will, however, presumably depend more and more upon use of nuclear fuel for industrial power. Here is information for the would-be prospector.

**THE NEGRO POTENTIAL**—Eli Ginzberg, assisted by James K. Anderson, Douglas W. Bray and Robert W. Smuts—*Columbia University Press*, 144 p., \$3.00. The single most underdeveloped human resource in the United States is the Negro, this study indicates. We cannot afford, the author says, to waste this important resource.

**THE NORMAL CHILD AND SOME OF HIS ABNORMALITIES**—C. W. Valentine—*Penguin*, 291 p., paper, 85 cents. Reassuring parents who notice what they regard as strange behavior in their child.

**PHYSICS AND MATHEMATICS**—R. A. Chaprie, J. Horowitz, D. J. Hughes and D. J. Littler, Eds.—*McGraw-Hill*, Progress in Nuclear Energy, Series I, 398 p., illus., \$12.00. Contains forewords by Sir John Cockcroft and V. F. Weisskopf. A summary of results and methods of value to workers in reactor design.

**POLIO AND THE SALK VACCINE: What You Should Know About It**—Alton L. Blakeslee, foreword by Basil O'Connor—*Grosset & Dunlap*, 78 p., illus., paper, \$1.00. Telling where we stand in the fight against polio and showing that it is now unmistakably a winning fight.

**PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY: Volume 6, Geology of Uranium and Thorium—United Nations, (Columbia University Press), 825 p., illus., \$9.00. Virtually every country represented at the Geneva Conference presented a summary of its own resources and prospects. This volume presents the total worldwide picture.**

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**RESISTANCE WELDING: Theory and Use—Resistance Welding Committee, American Welding Society—Reinhold, 163 p., illus., \$4.50. Prepared for those who must use the process.**

**SOLAR RADIATION, ABSORPTION RATES, AND PHOTOCHEMICAL PRIMARY PROCESSES IN URBAN AIR**—Philip A. Leighton and William A. Perkins—*Air Pollution Foundation*, Report No. 14, 129 p., paper, \$5.00. Showing that nitrogen oxides and other substances as well as hydrocarbons must be reduced in order to eliminate smog.

**STILL DIGGING**—Sir Mortimer Wheeler—*Dutton*, 236 p., illus., \$4.00. Autobiography of a scientist who has spent a lifetime in search of the past and whose only regret concerns the total of twenty years out of that lifetime he had to spend in sleep.

**SYMPOSIUM ON MEDICATED FEEDS**—Henry Welch and Felix Marti-Ibanez, Eds.—*Medical Encyclopedia*, 214 p., \$4.00. American farmers face profound changes in feeding and medicating livestock and poultry, resulting from modern discoveries concerning nutrition and disease control.

**THE TRUE BOOK OF MORE SCIENCE EXPERIMENT**—Illa Podendorf—*Childrens Press*, 47 p., illus., \$2.00. Simple experiments for primary school children on light, work, inertia, ice, water and water vapor.

**WIND TRAJECTORY STUDIES OF THE MOVEMENT OF POLLUTED AIR IN THE LOS ANGELES BASIN**—Morris Neiburger, Nicholas A. Renzetti and Rita Tice—*Air Pollution Foundation*, Report No. 13, 74 p., illus., paper, \$4.00. Showing that motor vehicle exhaust gases are a major source of pollution on smoggy days.

**YOU AND THE SCIENCES OF MANKIND**—Ray Brockel—*Childrens Press*, 61 p., illus., \$2.00. Telling children what the sciences offer as a field of interest.

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Science News Letter, July 14, 1956

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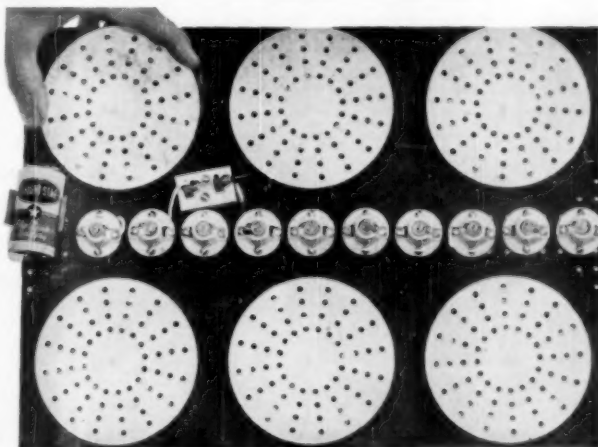
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# Questions

ASTRONOMY—What is the law of the red shift? p. 21.

EDUCATION—How many U.S. youngsters were studying foreign languages in grammar school last year? p. 25.

GEOLOGY—Where can badlands be found in the East? p. 20.

GEOPHYSICS—Where is the North Pole 150 miles in the atmosphere? p. 27.

MEDICINE—How can bodies of crash victims be identified? p. 22.

PSYCHOLOGY—How could recurring strikes be halted? p. 20.

Photographs: Cover, Westinghouse Electric Corporation; p. 19, Woods Hole Oceanographic Institution; p. 21, F. C. Livingstons; p. 23, University of Illinois; p. 26, Fremont Davis; p. 32, Eastman Chemical Products, Inc.

## BIOPHYSICS

### Cut Crop Intake Of Radiostromium

► A POSSIBLE MEANS of controlling crop absorption of a dangerous by-product of nuclear fission is indicated in the research of Wallace H. Fuller, associate biochemist and associate professor of agricultural chemistry at the University of Arizona.

Radioactive strontium, the most biologically hazardous product of an atomic explosion, will not contaminate food crops if the soil contains enough exchangeable calcium.

The more exchangeable calcium there is in the soil, the less strontium will be absorbed, Dr. Fuller's investigations show. Dr. Fuller emphasizes, however, that the total amount of calcium in the soil has nothing to do with this radiostromium uptake. What does count is the presence of exchangeable calcium available to plants.

Radioactive strontium 90 is considered exceedingly dangerous to plants and animals because it accumulates easily in tissues and because it has a half-life of 25 years. Concentrations of radiostromium in food crops will poison persons eating the contaminated foods. Accumulation of strontium in bones can cause bone tumors and possible injury to blood-forming organs.

Crops investigated were clover, beans, barley, wheat, lettuce, tomatoes, spinach, radish and rye grass.

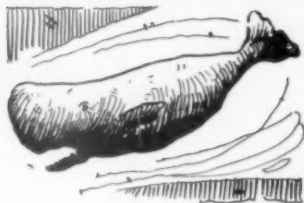
Dr. Fuller also found that radiostromium applied to leaves of plants was not transferred to other parts of the plants.

"This lack of translocation is very important," Dr. Fuller points out. "It means that under many circumstances contaminated crops that otherwise would have to be discarded or removed from the land could be used for the food provided by their uncontaminated parts, without danger of radioactivity."

MARINE BIOLOGY

# NATURE RAMBLINGS

by Horace Loftin



Leviathan's I.Q.

## ► HOW INTELLIGENT is a whale?

The author of "Moby Dick," who had sailed on an old-time New England whaling vessel, portrayed that great white whale as having almost human qualities in terms of will and reasoning. In general, however, it must be admitted that scientists know little of the mental capabilities of the great whales.

There is quite a bit of evidence of a comparatively high degree of mental attainment on the part of the smaller whales—the friendly porpoises or dolphins. Scientists have been able to study these sea-going mammals at close quarters, for example, in the great tanks at Marineland, Fla.

In general, they agree that captive porpoises display intelligence on a par with or above that of the dog.

The Marineland porpoises have been trained to do a great variety of tricks, to the delight of tourists and the benefit of scientists studying their behavior. More important, perhaps, are apparently intelligent acts carried out by the porpoises without their being trained.

Here is an example of such "intelligent" behavior. A number of bottle-nose dolphins (porpoises) had been captured for the "Liv-

ing Sea" oceanarium at Ft. Walton, Fla., and were being transferred from the deck of a boat into a pen. Three were already unloaded, but as the fourth was lifted he struck his head. Stunned, the porpoise fell into seven feet of water and sank immediately.

Two of the porpoises already in the pen quickly swam to their unconscious companion. Each placed his head under a flipper of the injured porpoise and together they raised him to the surface in an apparent effort to allow him to breathe.

The two "good Samaritans" had to leave the stunned porpoise from time to time in order to get their own breath, but they continued to come to his aid until he could swim away on his own steam.

There is some danger in calling such acts "intelligent," since the line between instinctive actions and reasoning in animals is far from being clearly drawn, but those who know the likable porpoises are apt to disregard such a cautious stand and to say that porpoises rate a high I.Q. in the animal world.

Who, then, can rate the I.Q. of the giant whales of the ocean depths?

Science News Letter, July 14, 1956

## HEMATOLOGY

### Find Antidote for Anti-Blood Clotter

► DISCOVERY of a drug to reverse the anti-blood clotting effect of heparin has been announced by Drs. Frederick W. Preston, Robert Hohf and Otto Trippel of Northwestern University School of Medicine.

The drug is called polybrene. It might be used, the doctors point out, for patients who had been getting heparin to prevent further blood clots after heart attacks or strokes and who suddenly needed an operation. Giving polybrene would promptly restore the normal clotting mechanism of the blood, so there would not be hemorrhage during the operation.

Heparin is a chemical found naturally in the body that prevents blood from clotting. Sometimes the heparin mechanism is disturbed and abnormal bleeding occurs, such as in hemorrhage after birth, in leukemia, or bleeding under the skin that causes bruise-like purple patches.

In such cases, antiheparin agents such as polybrene are useful to neutralize the misbehaving heparin, so that the blood can clot and stop the bleeding.

Polybrene is "similar in most respects" to two other anti-heparin drugs, protamine sulfate and toluidine blue, but "polybrene is more potent than either," the doctors report. "It is stable and may be stored for long periods of time."

The drug's prompt heparin-reversing action showed in studies of 33 patients at the Veterans Administration Research hospital where Dr. Preston is chief of surgical services. The studies are reported in the *Quarterly Bulletin of the Northwestern University Medical School*.

Science News Letter, July 14, 1956

## AGRICULTURE

### Grain-Sorghum Hybrids Increase Yields 30%

► HYBRID VARIETIES of grain-sorghums produce 20% to 30% better yields than standard varieties, U. S. Department of Agriculture tests have shown.

Farmers are expected to change over to the new hybrids as soon as enough seeds become available, which should be about 1958.

Development of grain-sorghum hybrids has been slower than similar development of corn. Department of Agriculture agronomists say the new grain-sorghums have the same production efficiency as corn hybrids of 25 years ago.

The new hybrids, some of which have already been tested in seven states, are likely to become more important as a feed crop. In many areas they can serve as alternate crops for land diverted from wheat or cotton. Hybrids for which seed is now available can be grown in the southwestern section of the corn belt and throughout much of the grain-sorghum growing areas. Agriculture experts say by 1958 farmers will have several kinds of hybrids to choose from.

Horticulturists are now working to develop a grain-sorghum hybrid more nutritious and able to resist mold during rainy fall weather.

Science News Letter, July 14, 1956

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❁ **LATTICED LAUNDRY BASKET** for lightening washday chores is molded all in one piece from polyethylene plastic. Almost breakproof, the basket is so light that mother's little helper can handle it. It is available in red, yellow and turquoise.

Science News Letter, July 14, 1956

❁ **RADIO BICYCLE** is just what the name implies, a bicycle with a radio encased in its frame. To insure against tampering, a special tool is required to remove the screws and a special key to operate the set. A power pack holds the A and B batteries. The built-in bike radio is described as shock-, moisture- and freeze-proof.

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❁ **ALUMINUM PASTE** dries metal-hard in three to four hours. When solid, it can be drilled, filed, tapped or threaded. The plastic aluminum compound is designed to seal leaks in water lines, gutters and downspouts, as well as mend broken toys or fill holes and dents in cars.

Science News Letter, July 14, 1956

❁ **BOUNCING HORSE** for "cowpokes" one to six, shown in the photograph, has a tough hide molded of acetate plastic and airbrushed in natural palomino shadings. The saddle, molded right into the body, is



a detailed reproduction of a hand-etched leather saddle. The horse's legs, rests for the rider's hands and feet and frame are of natural wood.

Science News Letter, July 14, 1956

❁ **MIXING VALVE** produces hot water at any desired temperature from cold water

and steam. It is for use where only cold water and steam are available and designed for chemical processing, rubber vulcanizing, oil processing and canning operations. The mixer is available in 1/2-inch and 3/4-inch sizes.

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❁ **KITCHEN COOKER** is described as scientifically designed with a condenser top that allows a certain amount of steam to escape and at the same time retains enough extra heat and moisture. Available in eight-inch and 11-inch sizes, the cooker dry fries, browns, stews, casseroles and cooks both sides of the food at once.

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❁ **FLOOR TILES** that sparkle are made of vinyl resins impregnated with flakes of metallic color, including burnished copper, gold and silver. The tiles resist water, chemicals and abrasion. No special techniques are needed for installation, and they can be put over any existing sub-floor without expensive preparation.

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❁ **LIGHTWEIGHT SOLDERER** is a six-ounce soldering gun that is designed for heavy duty performance. Operating off any six- to 12-volt AC or DC supply, the gun develops operating temperature in four to six seconds. It has a pistol type casing and a tubular barrel for interchangeable tips.

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7-14-6

## Do You Know?

Uranium recovery is now the biggest use of ion exchange outside the water-treatment field.

New York and Chicago together have as many automobiles as France and Switzerland combined.

A total of 862 cities of more than 5,000 population went through 1955 without a single traffic fatality.

About 20,000 kilograms of germanium were consumed in 1955 out of a total available supply of about 24,000 kilograms.

Multiple sclerosis, a disease of the central nervous system, was first noted in 1835 by Sir Augustus d'Este, a cousin of Queen Victoria.

Today, Dutch elm disease is known to occur in all states from Tennessee northward and from Missouri and Illinois eastward, and in Quebec and Ontario, Canada.